

Table 1
Leaching Model Physical Parameters

	0.1m simulations	3.1m simulations	6.1m simulations
Model Setup Parameters	Sand	Sand	Sand
Maximum no. of Time Steps	1,000,000	1,000,000	1,000,000
units	meter day gram	meter day gram	meter day gram
Initial Hydraulic Condition	Steady state	Steady state	Steady state
Intercell Relative Hydraulic Conductivity	Arithmetic mean	Arithmetic mean	Arithmetic mean
Hydraulic Characteristic Function	Van Genuchten	Van Genuchten	Van Genuchten
Differencing Scheme for Transport Equation	Centered	Centered	Centered
Adsorption	Linear Isotherm	Linear Isotherm	Linear Isotherm
Relaxation Parameter	0.7	0.7	0.7
Minimum Iterations per Time Step	2	2	2
Maximum Iterations per Time Step	80	80	80
Closure criteria for head [m]	1.00E-04	1.00E-04	1.00E-04
Closure criteria for concentration [g/m ³]	1.00E-05	1.00E-05	1.00E-05
Grid spacing - rows (m)	0.01-0.1	0.01-0.1	0.01-0.1
Grid spacing - columns (m)	0.25-0.5	0.25-0.5	0.25-0.5
Domain width [m]	13	13	13
Domain thickness [m]	5.0	8.0	11.0
Source Area width [m]	9.0	9.0	9.0
Source Area thickness [m]	1.5	1.5	1.5
Vadose zone thickness [m]	3.0	6.0	9.0
Saturated zone thickness [m]	2.0	2.0	2.0
Initial concentration 1.4-2.9m, [g/m ³]	10.0	10.0	10.0
Vadose/Saturated Zone Soil Parameters			
Kz/Kh	1.0	1.0	1.0
Saturated Kh [m/d]	7.0	7.0	7.0
Specific Storage	0	0	0
Porosity	0.4	0.4	0.4
Residual Moisture Content	0.045	0.045	0.045
VG alpha parameter [1/m]	-14.5	-14.5	-14.5
VG beta parameter	2.68	2.68	2.68
Soil density [g/m ³]	1.50E+06	1.50E+06	1.50E+06
Vadose Zone Solute Parameters			
Longitudinal dispersivity [m]	0.05	0.1	0.15
Transverse dispersivity [m]	0.05	0.1	0.15
Decay coefficient [1/d]	0	0	0
Fraction organic carbon (included in Kd value)	0.006	0.006	0.006
Partitioning coefficient, Kd [m ³ /g]	EPA values	EPA values	EPA values
Molecular Diffusion Coefficient [m ² /d]	EPA values	EPA values	EPA values
Saturated Zone Soil Parameters			
Kz/Kh	1.0	1.0	1.0
Saturated Kh [m/d]	7.0	7.0	7.0
Porosity	0.4	0.4	0.4
Residual Moisture Content	0.045	0.045	0.045
VG alpha parameter [1/m]	-14.5	-14.5	-14.5
VG beta parameter	2.68	2.68	2.68
Soil density [g/m ³]	1.50E+06	1.50E+06	1.50E+06
Specific Storage	0	0	0
Hydro Parameters			
Number of recharge periods	1	1	1
Recharge period length [d]	varies	varies	varies
Initial Time step [d]	0.01	0.01	0.01
Time step multiplier	1.5	1.5	1.5
Maximum Time step [d]	1	1	1
Minimum Time step [d]	0.01	0.01	0.01
Depth to water [m]	3	6	9
Time step reduction factor	0.1	0.1	0.1
Maximum head change [m]	0.05	0.05	0.05
Steady-state head criterion [m]	0	0	0
Maximum height of ponding [m]	0	0	0
Specified flux boundary [m/d]	2.50E-04	2.50E-04	2.50E-04
Groundwater gradient [m/m]	0.005	0.005	0.005
Specified total head boundary-upgradient [m]	-2.97	-5.97	-8.97
Specified total head boundary-downgradient [m]	-3.03	-6.03	-9.03

HELP Input Parameters	
Parameter	value
No. of soil layers	1
Thickness [m]	1.5
Porosity	0.457
Field Capacity	0.083
Wilting Point	0.033
Initial Moisture Content	0.166
Saturated Hydraulic Conductivity [m/d]	2.67
SCS Runoff Curve Number [%]	81.3
Fraction of Area Allowing Runoff	95
Horizontal Area [Hectares]	0.09
Evaporative Zone Depth [m]	0.15